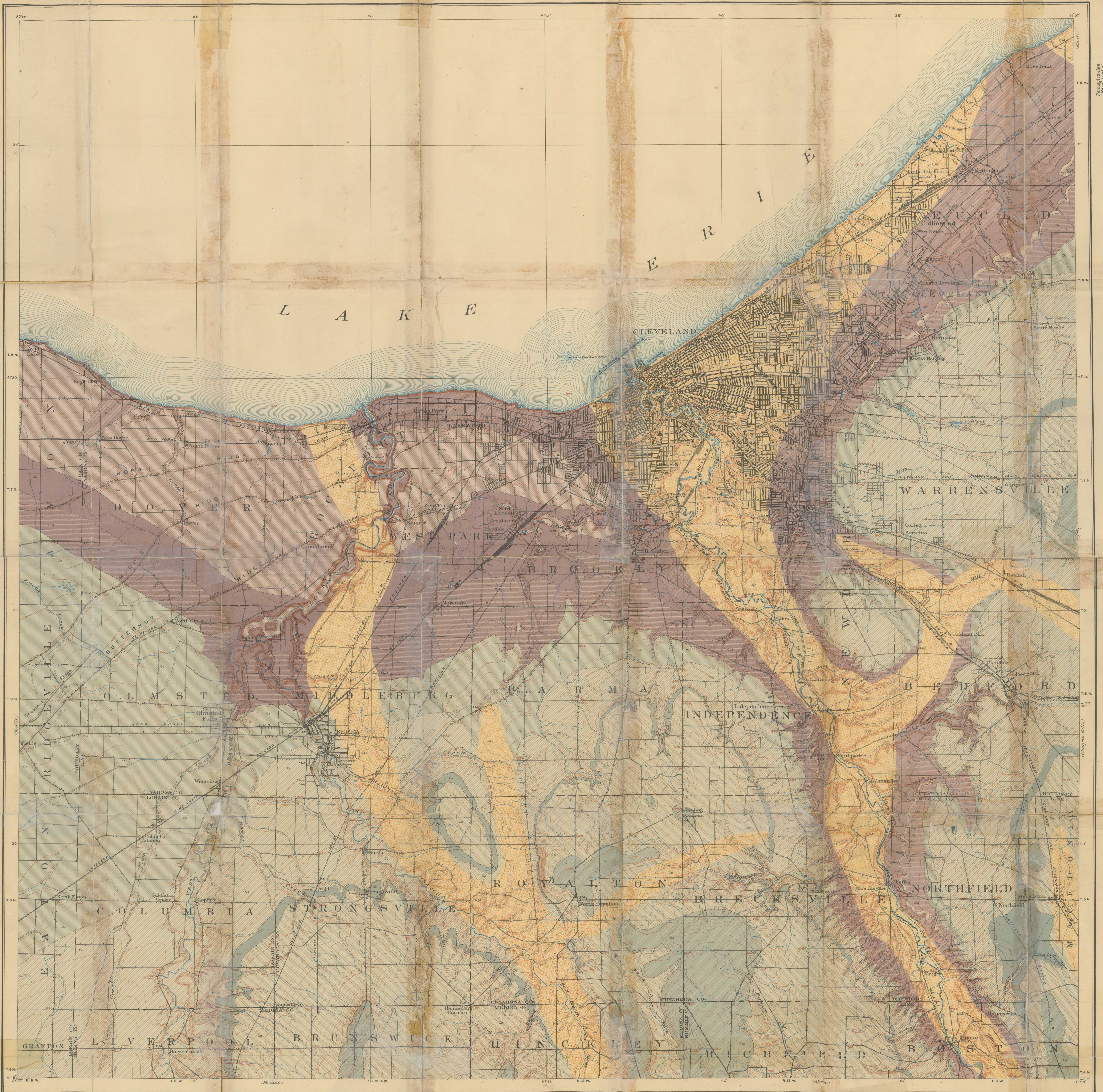

Base from U. S. G. S. maps of Euclid, Cleveland, and Berea quadrangles. Surveyed in 1901–2

WILLIAMS & HEINTZ CO. WASH. D.C.

INDEX OF QUADRANGLES: EUCLID, CLEVELAND, BEREA

TRUE NORTH / MAGNETIC NORTH 4°
APPROXIMATE MEAN DECLINATION 1929

MAP OF THE EUCLID, CLEVELAND, AND BEREA QUADRANGLES, OHIO, SHOWING AREAL GEOLOGY

Scale $\frac{1}{62500}$

1 ½ 0 1 2 3 4 Miles

1 ½ 0 1 2 3 4 5 Kilometers

Contour interval 20 feet east of 81° 45', 10 feet west of 81° 45'.
Datum is mean sea level.

1931

Geology east of 81° 45' by H. P. Cushing, 1905–1907
Geology west of 81° 45' by H. P. Cushing and C. R. Stauffer in 1907–1908.

EXPLANATION

QUATERNARY — Pleistocene

Qgd — **Glacial deposits** (*Filling preglacial valleys and rendering mapping of bedrock formations uncertain or impossible*)

CARBONIFEROUS — Pennsylvanian (Basal part of Pottsville)

Csc — **Sharon conglomerate** (*Coarse yellow sandstone with much white quartz conglomerate at base*)

CARBONIFEROUS — Mississippian — Cuyahoga group

Cm — **Meadville shale** (*Soft blue shale with numerous bands of thin flags or of calcareous concretions with many fossils*)

Cs — **Sharpsville sandstone** (*Flagstone, shale partings*)

Co — **Orangeville shale** (*Homogeneous soft blue-black clay shale with a thin flagstone (Aurora member) near the base. Includes at base a thin representative of Sunbury shale*)

Cb — **Berea sandstone** (*Coarse white to yellow quartzose sandstone or grit*)

DEVONIAN OR CARBONIFEROUS — Upper Devonian or Mississippian

Cbd / Cbe — **Bedford shale** (*Soft blue or red clay shale with a few thin flags and with local Euclid sandstone lentil, Cbe, near base*)

Cc / Do — **Cleveland shale** (*Black carbonaceous slaty shale with many pyrite concretions; underlain by Olmsted shale member, Do, blue-black clay shale on the horizon of the upper Chagrin but more like the Cleveland in character*)

DEVONIAN

Dc — **Chagrin shale** (*Soft blue-gray to greenish clay shale with thin bands of flags and hard reddish concretions*)

Solid boundaries represent observed contacts; dashed boundaries represent approximate location of bedrock contact beneath heavy covering of glacial debris

⚒ Quarry